EDUCATION

B.S. Biology and Earth Science, University of Wisconsin-River Falls

Other

Courses: First Aid/CPR Certified

OSHA Certified

EMPLOYMENT

2001- Senior Project Manager

Present Conestoga-Rovers & Associates

1996-2001 Project Manager, Remediation Division, Dustcoating Inc.

1993-96 Project Manager, Conestoga-Rovers & Associates1984-93 Project Engineer, Conestoga-Rovers & Associates

PROFILE OF PROFESSIONAL ACTIVITIES

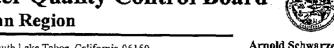
- Senior Project Manager for Conestoga-Rovers & Associates. Responsibilities include: project
 management of current construction and remediation projects, scheduling, contract review and
 negotiation, construction oversight, project-specific health and safety, liaison with regulatory
 agencies, budget preparation, and project development
- Project Manager for the Agricultural Services Group. Responsibilities include managing current State
 and Federal programs with NRCS, Department of Agricultural, FSA and local trade organizations.
 Work hands o with various producers to design, upgrade, and implement conservation practices
- Project Manager on ten MGP site remediations using on-site thermal desorption as the treatment technology. These sites were located in Minnesota, Wisconsin, and Iowa. On-site activities included demolition, hazardous waste segregation, and de-listing, permitting, contract oversight, liaison for utility clients with Agencies and general public, preparation of all documents, and general project oversight
- Project Manager on a Remedial Investigation/Feasibility Study at a large former manufactured gas
 plant in Minnesota. Completed a multi-step Interim Response Action dealing with excavation and
 removal of coal gasification by-products
- Project Coordinator on a Phase I and Phase II Site Investigation at six former manufactured gas plants
- Project Engineer/Coordinator on a former residential and industrial dump site. Design and construction of a Groundwater Extraction System and a Drum Investigation, Removal, and Disposal Operation
- Project Engineer/Coordinator at a large industrial manufacturing facility. Completed extensive Groundwater Investigation and Multi-well Groundwater Extraction System
- Project Coordinator on a Site Investigation at a 120-acre wood treating facility in Wisconsin. The Investigation focused on environmental impacts from past disposal practices

- Project Coordinator at a CERCLA listed, former scrap yard. Completed a Remedial Investigation/Feasibility Study and several Interim Response Actions dealing with PCB and heavy metal contaminated materials
- Project Engineer/Coordinator at a manufacturing facility in Wisconsin. Successfully negotiated "No Further Action" with the regulating agency
- Project Biologist at a large truck manufacturing facility. Involved in an Ecological Risk Assessment on the effects of industrial manufacturing on a small aquatic ecosystem
- Field Engineer at a high priority CERCLA Site. Supervised the construction and implementation of a Multi-Well Extraction System
- Project Engineer/Coordinator at a former industrial sludge disposal site. Completed a Remedial Investigation and Disposal Cell Characterization
- Project Engineer at a printed circuit manufacturing facility. Completed a Remedial Investigation/Feasibility Study and assisted in the design and implementation of a Multi-well Groundwater Extraction and Treatment System
- Project Engineer at a former nuclear power plant. Completed a Waste Disposal Investigation to determine if buried waste was present on the property
- Field Engineer on a CERCLA Landfill Site. Completed a Remedial Investigation/Feasibility Study and a Buried Drum Investigation at a hazardous waste disposal cell



California Regional Water Quality Control Board

Labortan Region



Linda S. Adams Secretary for Environmental Protection

2501 Lake Tahoe Boulevard, South Lake Tahoe, California 96150 (530) 542-5400 • Fax (530) 544-2271 www.waterboards.ca.gov/lahontan

Arnold Schwarzenegger Gavernor

NOV 1 0 2008

CERTIFIED MAIL:

7006 2760 0003 9496 7059

Paul Ryken Desert View Dairy 37501 Mountain View Road Hinkley, CA 92347

Estate of Nick Van Vliet Van Vliet Dairy 8571 Merrill Avenue Chino, CA 92710.

CERTIFIED MAIL:

7006 2760 0003 9496 7066

Flameling Dairy, Inc. c/o Bert & Kathleen A. Flameling 2088 Candlewood Avenue

Twin Falls, ID 83301-8338

CERTIFIED MAIL:

7006 2760 0003 9496 7073

K&H Van Vliet Children LLC c/o Nellie Ruisch 23925 Waalew Road

Apple Valley, CA 92307-6932

CERTIFIED MAIL:

7006 2760 0003 9496 7202

Robert Doss Mail Code B16A Pacific Gas and Electric Company 77 Beale Street San Francisco, CA 94105-1814

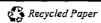
CERTIFIED MAIL: 7006 2760 0003 9496 7226

CLEANUP AND ABATEMENT ORDER NO. R6V-2008-0034, DESERT VIEW DAIRY CONTAMINATION IN GROUNDWATER, HINKLEY, SAN BERNARDING COUNTY, WDID NO. 6B36040900

Enclosed is Cleanup and Abatement Order (CAO) No. R6V-2008-0034. This CAO directs the operators, past operator, and owners of the Desert View Dairy to provide an uninterrupted replacement water supply (i.e., bottled water, well head treatment or equivalent) to well owners with elevated nitrate concentrations in private drinking water supply wells in the vicinity of and in the downgradient flow direction of the Dairy.

The operators of the Desert View Dairy, Mr. Paul Ryken and the Estate of Nick Van Vliet, and the past operator, Flameling Dairy Inc., are primarily responsible for complying with the requirements of this order because they caused or contributed to the pollution and degradation of groundwater from discharges at the Dairy. The owners of the Desert View Dairy, the K&H Van Vliet Children LLC and Pacific Gas and Electric Company, are secondarily responsible for complying with the requirements of this order because they are ultimately responsible for activities at the Dairy.

California Environmental Protection Agency



Paul Ryken
Estate of Nick Van Vliet
Flameling Dairy, Inc.
K&H Van Vliet Children LLC
Robert Doss

The CAO requires that you provide uninterrupted replacement water to residences where analysis of groundwater samples have indicated or future sample results indicate nitrate as NO₃ levels greater than the Maximum Contaminant Level (MCL) of 45 milligrams per liter (mg/L) (10 mg/L nitrate as nitrogen). The CAO requires that you also test all private wells affected or potentially affected by pollution four times per year and submit technical reports. You may request to cease supply of uninterrupted water service if four consecutive quarters of testing indicate that nitrate concentrations are all less than the MCL.

Failure to comply with these directives subjects you to enforcement action by the Water Board. Such an action may include assessment of an administrative civil liability for up to five thousand dollars (\$5,000) for each day of violation of a directive, or referral to the California Attorney General for appropriate action.

I appreciate your cooperation in this matter. Please be sure that copies of all documents sent to the Water Board's South Lake Tahoe office are also sent to the Water Board's office at: 14440 Civic Drive, Suite 200, Victorville, California 93292.

If you have any questions, please contact Lisa Dernbach at (530) 542-5424 (ldernbach@waterboards.ca.gov) or Chuck Curtis at (530) 542-5460 (ccurtis@waterboards.ca.gov).

HAROLD J. SINGER EXECUTIVE OFFICER

cc (w/ enclosure):

Lahontan Water Board Members

David Coupe, OCC, State Water Resources Control Board

San Bernardino County Health Department

Mailing list

Enclosure:

Cleanup and Abatement Order No. R6V-2008-0034

LSD/clhT: U:Cleanup and Enforcement/ Specialists Desert View Dairy CAO cover letter 11-6-08.doc [WDID 6B36040900]

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD LAHONTAN REGION

CLEANUP AND ABATEMENT ORDER NO. R6V-2008-0034
REQUIRING PAUL RYKEN, THE ESTATE OF NICK VAN VLIET, FLAMELING DAIRY, INCORPORATED, K&H VAN VLIET CHILDREN LLC, AND THE PACIFIC GAS AND ELECTRIC COMPANY
TO CLEANUP OR ABATE THE EFFECTS OF CONTAMINANTS TO GROUNDWATERS OF THE MOJAVE RIVER HYDROLOGIC UNIT,
DESERT VIEW DAIRY, HINKLEY,
WDID NO. 6B36040900

SAN BERNARDINO COUNTY	r
	····

The California Regional Water Quality Control Board, Lahontan Region (Water Board), finds:

FINDINGS

- 1. The Desert View Dairy (DVD) is located at 37501 Mountain View Road in Hinkley. The DVD is situated east of this unincorporated community in San Bernardino County, in the Harper Valley Subarea of the Mojave Hydrologic Unit. As described below, the Flameling Dairy operated at this location. Hereinafter, land upon which the Desert View Dairy is located and the Flameling Dairy was located will be referred to as the "Property" and the operations of the DVD and Flameling Dairy as "dairy operations."
- 2. From 1981 to 1992, the Property was owned by FD Farms and from 1981 to 1986 the dairy operations were controlled by Flameling Dairy, Inc. From 1986 to approximately 1992, no dairy operations were conducted at the Property.
- 3. The K&H Van Vliet Children LLC and various Van Vliet trusts owned the property from1992 to 2002. Mr. Paul Ryken and Mr. Nick Van Vliet have conducted dairy operations on the Property since approximately 1992 under a general partnership known as the Desert View Dairy. Mr. Van Vliet is recently deceased. The Water Board understands that the estate of Mr. Van Vliet remains a partner in the dairy operation.
- 4. The Pacific Gas and Electric Company (PG&E) bought the property in 2002 and leases it to the Desert View Dairy partnership to operate as a dairy.
- 5. Mr. Ryken, the estate of Mr. Van Vliet, Flameling Dairy, Inc., the K&H Van Vliet Children LLC and PG&E are hereinafter referred to as "Dischargers." Additional dischargers may be named as additional information becomes available.
- 6. The Property consists of approximately 180 acres that include a dairy operation, two residences, crop fields, and a manure/wastewater storage pond. The current

OV IZ OU OUWED I GUI INVINOIT

100 200 0100

٧.

PAUL RYKEN, -2THE ESTATE OF NICK VAN VLIET,
FLAMELING DAIRY, INCORPORATED,
K&H VAN VLIET CHILDREN LLC, AND
THE PACIFIC GAS AND ELECTRIC COMPANY
San Bernardino County

CLEANUP & ABATEMENT ORDER NO. R6V-2008-0034 WDID NO. 6B36040900

dairy operation includes approximately 1,500 dairy cows on the Property. In a July 30, 2008 letter report from Conestoga-Rovers and Associates on behalf of Mr. Ryken, it was estimated that approximately 43,000 gallons of wastewater containing nitrogen and total dissolved solids is generated each day by dairy operations. Liquid wastewater is stored in a storm water pond that was reportedly constructed with a clay liner in 1981, when Flameling Dairy, Inc. operated the dairy. The integrity of the clay liner is unknown. The wastewater is applied onto fields in the northern portion of the property. These discharges contributed to increased nitrate and other constituents in groundwater beneath and in the downgradient groundwater flow direction of the Property due to the nitrate and salts present in the wastewater.

- 7. From approximately 1992 to 1996, the Desert View Dairy partnership discharged manure solid waste to areas in the northern portion of the property. Between 1996 and 2001, manure was both spread on the site and exported to surrounding fields on other properties. Since 2002, manure has been trucked to an off-site facility for processing. No records were kept of the volume of manure applied at the Property each year when land disposal occurred. However, records from 2004 to 2007 show that the dairy operation produces an annual average of 5,314 tons of solid waste. These past discharges may have contributed to increased nitrate and other constituents in groundwater beneath and downgradient of the Property due to the nitrate and salts present in the manure.
- 8. As the current dairy operators, Mr. Paul Ryken and the estate of Mr. Nick Van Vliet, as the Desert View Dairy general partnership, are subject to this Order because they know or should know of the discharge of waste and have the ability to control it. As the former dairy operator, Flameling Dairy, Inc. are subject to this Order because it knew or should have known of the discharge of waste and had the ability to control it. As former owner of the property, the K&H Van Vliet Children LLC knew or should have known of the discharge of waste and had the ability to control it. Since it acquired the Property in 2002, PG&E knows or should know of the discharge of waste and has the ability to control it.
- 9. On January 31, 2008, Water Board staff collected a water sample from the domestic well at the residence located at 22858 Alcudia Road in Hinkley, at the owner's request. The well is situated approximately 200 feet north of the Property. Six measured constituents in the sample exceed either the primary or secondary drinking water standards (Maximum Contaminant Levels or MCLs) or a USEPA Health Advisory level. The detected concentrations for the six constituents are shown here:

	Constituent	Concentration	Standard
-	Nitrate as NO ₃	81 mg/L	45 mg/L
	Chloride	1200 mg/L	250-600 mg/L

PAUL RYKEN,
THE ESTATE OF NICK VAN VLIET,
FLAMELING DAIRY, INCORPORATED,
K&H VAN VLIET CHILDREN LLC, AND
THE PACIFIC GAS AND ELECTRIC COMPANY
San Bernardino County

CLEANUP & ABATEMENT ORDER NO. R6V-2008-0034 WDID NO. 6B36040900

1400 mg/L	250-600 mg/L
5100 µmhos/cm	900-2200 µmhos/cm
410 mg/L	20 mg/L
4600 mg/L	500-1500 mg/L
	5100 μmhos/cm 410 mg/L

- 10. On May 9, 2008, the Water Board ordered Mr. Ryken and PG&E to submit technical reports to investigate pollution in groundwater beneath and adjacent to the Property. The order was based on prior ground water samples collected at the Property showing concentrations of nitrates (as NO₃) up to 81 mg/L and total dissolved solids up to 3120 mg/L, which exceed MCLs. The order, issued pursuant to section 13267 of the Water Code, required the submittal of: a groundwater investigation workplan; description of all waste disposal actions for the past 15 years, and; a technical report describing the results of a groundwater investigation to evaluate the extent of pollution from dairy operations on the Property.
- 11. On August 11, 2008, the Water Board received a citizen letter complaining about high levels of nitrates detected in her residential well, located at 22726 Thompson Road in Hinkley. The residence is situated about 2,500 feet north of the Property, in the estimated downgradient groundwater flow direction from the Property. The letter included a copy of laboratory results showing that 96 mg/L nitrate (as NO₃) was detected in a water sample. The letter expressed concern about the source of nitrates, potential health affects, and actions that the Water Board is taking to address the problem. A reply letter by Water Board staff was issued on September 15, 2008.
- 12. As of October 31, Mr. Ryken has complied with the three directives in the Water Code section 13267 order issued on May 9, 2008. The Water Board received a workplan proposing a groundwater investigation at and in the vicinity of the Property and a letter report describing waste management practices during the past 15 years. The workplan states that based on historical database review, the general background concentration of nitrate as nitrogen in groundwater ranges from 1 to 15 mg/L (nitrate as NO₃ from 4.5 to 67.5 mg/L) on properties surrounding the Property. Mr. Ryken conducted the groundwater investigation, with off-site domestic well sampling in early-October 2008. The technical report describing the investigation results was submitted to the Water Board on October 31, 2008.
- 13. The 1995 Water Quality Control Plan for the Lahontan Region (Basin Plan) established water quality objectives (WQOs) for the protection of beneficial uses. WQOs include the following primary MCL established by the California Department of Public Health as a safe level to protect public drinking water supplies:

۲.

PAUL RYKEN,
THE ESTATE OF NICK VAN VLIET,
FLAMELING DAIRY, INCORPORATED,
K&H VAN VLIET CHILDREN LLC, AND
THE PACIFIC GAS AND ELECTRIC COMPANY
San Bernardino County

CLEANUP & ABATEMENT ORDER NO. R6V-2008-0034 WDID NO. 6B36040900

Nitrate as NO₃

45 mg/L

The following secondary MCLs are established by the California Department of Public Health as consumer acceptance contaminant levels:

			Short Term
Constituent	Recommended	Upper	
Chloride (mg/L)	250	500	600
Sulfate as SO ₄ (mg/L)	250	500	600
Total Dissolved Solids (mg/L)	500	1000	1500
Specific Conductance (EC) (µmhos/cm)	900	1600	2200

The following U.S. EPA Health Advisory is established as a secondary drinking water standard for individuals on a 500 mg/day restricted sodium diet:

Sodium

20 mg/L

- 14. Dairy wastewater and solid manure are defined as wastes pursuant to Water Code section 13050, subdivision (d).
- 15. The Dischargers caused or allowed or threatened to cause nitrate-containing
 wastes and other wastes to be discharged to waters of the State underlying the Property.
- 16. Nitrate-containing wastes and other wastes have impacted groundwater beyond the boundaries of the Property. Water data from wells on the Property and offsite domestic wells as presented in Finding Nos. 9 12 indicate that the nitrate plume originating at the Property has migrated to at least Thompson Road, about 2,500 feet to the north. The lateral and vertical extent of the plume is not fully known but is under investigation. The required investigation report is the subject of another order of the Water Board.
- 17. Parcels within one mile to the north of the Property contain approximately 40 private and community domestic drinking supply wells, as indicated in a 2006 well survey report submitted by PG&E. Wastes from the Property either have adversely impacted or threaten to impact supply wells with nitrates and other wastes exceeding the drinking water MCLs.

San Bernardino County

CLEANUP & ABATEMENT ORDER NO. R6V-2008-0034 WDID NO. 6B36040900

18. Water Code section 13050, subdivision (I) defines "pollution" as follows:

. . . an alteration of the water quality to a degree that unreasonably affects either beneficial uses or facilities that serve these beneficial uses.

- 19. Pursuant to Chapter 2 of the Basin Plan, present and potential beneficial uses of groundwater underlying and downgradient of the Property include domestic and municipal water supply, agricultural water supply, industrial water supply, freshwater replenishment, and aquaculture.
- 20. Because the discharges have caused or contributed to groundwater beneath and downgradient of the Property to exceed the drinking water standard for nitrate as NO₃ (45 mg/L), the affected ground water is no longer useable for drinking or domestic supply. This alteration is unreasonable because the aquifer is currently used for drinking water and the portion of the aquifer affected by the discharge is no longer suitable for this beneficial use. The discharges have, therefore, unreasonably affected the water for municipal and domestic supply beneficial use and caused a condition of pollution.
- 21. Mr. Paul Ryken, the estate of Mr. Nick Van Vliet, and Flameling Dairy, Inc., are primarily liable for complying with this Order. A regional board may make a distinction between primary and secondary liability. (See, e.g., *Alcoa et al.*, State Water Resources Control Board (State Water Board) WQ Order No. 93-09 at p. 12, fn. 8.) This distinction has been made primarily for equitable reasons.
 - In this case, Mr. Paul Ryken, the estate of Mr. Nick Van Vliet, and Flameling Dairy, Inc., are primarily liable for compliance with this cleanup order because Mr. Ryken and Mr. Van Vliet, as the Desert View Dairy general partnership, and the Flameling Dairy, Inc., as dairy operators initiated and contributed to the discharge of waste. More specifically, because Mr. Paul Ryken, Mr. Van Vliet and Flameling Dairy, Inc., caused waste to be discharged such that groundwater has been adversely affected by elevated concentrations of nitrate and salts, Mr. Paul Ryken, the estate of Nick Van Vliet, and Flameling Dairy, Inc., are primarily responsible for compliance with this Order.
- 22. The K&H Van Vliet Children LLC and PG&E are secondarily liable for complying with this Order. The State Water Board has also cited factors that are appropriate for regional boards to consider in determining whether a party should be held secondarily liable. These factors include making a distinction between those parties who were considered responsible parties solely due to their land ownership and whether or not the parties initiated or contributed to the discharge.

In this case, Mr. Ryken, Mr. Van Vliet, and Flameling Dairy, Inc., rather than the K&H Van Vliet Children LLC and PG&E, initiated or contributed to the discharge, and the K&H Van Vliet Children LLC and PG&E are named as responsible parties due to their former or current ownership of the Property.

AUTHORITY - LEGAL REQUIREMENTS

23. Water Code section 13304, subdivision (a) states:

Any person . . . who has caused or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or deposited where it is, or probably will be, discharged to waters of the state and creates, or threatens to create, a condition of pollution or nuisance, shall upon order of the regional board clean up or abate the effects of the waste, or, in the case of threatened pollution or nuisance, take other necessary remedial action, including but not limited to, overseeing cleanup and abatement efforts. A cleanup and abatement order issued by the state board or a regional board may require the provision of, or payment for, uninterrupted replacement water service. which may include wellhead treatment, to each affected public water supplier or private well owner. Upon failure of any person to comply with the cleanup or abatement order, the Attorney General, at the request of the board, shall petition the superior court for that county for the issuance of an injunction requiring the person to comply with the order. In the suit, the court shall have jurisdiction to grant a prohibitory or mandatory injunction, either preliminary or permanent, as the facts may warrant.

24. Pursuant to Water Code section 13304, subdivision (f):

Replacement water provided pursuant to subdivision (a) shall meet all applicable federal, state, and local drinking water standards, and shall have comparable quality to that pumped by the public water system or private well owner prior to the discharge of waste.

25. The conditions described in Findings No. 9 - 12 constitute violations of the Basin Plan. The conditions described in these Findings also identify discharges of wastes where it has been discharged or deposited into waters of the State (groundwater) or probably will be discharged into the waters of the State. The Dischargers are therefore subject to Water Code section 13304.

26. Pursuant to Water Code section 13267, subdivision (b):

In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the reports, and shall identify the evidence that supports requiring that person to provide the reports.

- 27. This Order requires monitoring, workplans and reports pursuant to Water Code section 13267, subdivision (b). The monitoring required by this Order is necessary to evaluate the extent of pollution in groundwater, determine affected well owners, and to protect human health. Workplan and technical reports required in this Order are essential to design a water replacement plan and implementation schedule and to determine compliance with this Order.
- 28. Pursuant to Water Code section 13304, the Water Board is entitled to, and may seek, reimbursement for all reasonable costs actually incurred by the Water Board to investigate unauthorized discharges of wastes or to oversee cleanup of such waste, abatement of the effect thereof, or other remedial action pursuant to this Order.
- 29. The issuance of this Order is an enforcement action taken by a regulatory agency and is exempt from the provision of the California Environmental Quality Act (Public Resources Code section 21000 et seq.), pursuant to California Code of Regulations (CCR), title 14, section 15321, subdivision (a)(2). The implementation of this Order is also an action to assure the restoration of the environment and is exempt from the provisions of the California Environmental Quality Act (Public Resources Code, section 21000 et seq.), in accordance with CCR, title 14, sections 15308 and 15330.

PAUL RYKEN, -8
THE ESTATE OF NICK VAN VLIET,
FLAMELING DAIRY, INCORPORATED,
K&H VAN VLIET CHILDREN LLC, AND
THE PACIFIC GAS AND ELECTRIC COMPANY
San Bernardino County

CLEANUP & ABATEMENT ORDER NO. R6V-2008-0034 WDID NO. 6B36040900

ORDERS

IT IS HEREBY ORDERED, pursuant to Water Code sections 13267 and 13304, that Mr. Paul Ryken, the estate of Mr. Nick Van Vliet, and Flameling Dairy, Inc., as primarily responsible for the discharge of waste that has caused or threatens to cause a condition of pollution or nuisance, shall abate the effects of waste discharges at, near, and downgradient of the Property as follows in paragraphs 1 through 9. As secondarily liable for the discharge of waste that has caused or threatens to cause a condition of pollution or nuisance, the K&H Van Vliet Children LLC and PG&E shall abate the effects of waste discharges, at, near, or downgradient of the Property as follows in paragraphs 1 through 9 in the event that Mr. Ryken, the estate of Mr. Van Vliet, and Flameling Dairy, Inc. fail to comply with all or any portion of this Order and the Water Board notifies the K&H Van Vliet Children LLC and PG&E of the failure of Mr. Ryken, the estate of Mr. Van Vliet, and Flameling Dairy, Inc. to comply with this Order.

- 1. By November 19, 2008, supply interim uninterrupted replacement water service (i.e., bottled water or equivalent), to residences or businesses served by private or community domestic wells in which nitrate has been detected at concentrations exceeding 45 mg/L nitrate as NO₃ (10 mg/L nitrate as nitrogen), based on data generated in the most recent sampling event for any domestic well in the Affected Area. The Affected Area is defined as the area that is bounded by Serra Road in the west, Santa Fe Road in the south, Summerset Road in the east and Salinas Road in the north. The Affected Area may be modified as additional information becomes available. Furthermore, the Dischargers shall supply interim uninterrupted replacement water service (i.e., bottled water or equivalent), to any residence or business served by a private or community domestic well within the Affected Area within 48 hours of determining that the domestic well exhibits a nitrate as NO₃ concentration greater than 45 mg/L (10 mg/L nitrate as nitrogen) for the first time.
- 2. By November 26, 2008, provide notification to all parcel owners and occupants in the Affected Area that nitrate as NO₃ concentrations in groundwater may exceed the MCL of 45 mg/L. The Dischargers shall also include notification that all potentially affected wells will need to be sampled on a quarterly basis, beginning December 10, 2008. A copy of the notification must be received by the Water Board.
- 3. By <u>December 1, 2008</u>, submit a technical report to the Water Board listing all residences and businesses that have been provided interim uninterrupted replacement water service. The report must include the method(s) that the Dischargers have implemented to provide interim uninterrupted replacement water service including how this service will be maintained. If a residence or

business should have been provided interim uninterrupted replacement water service based on the requirement in Order No. 1 above and has not been provided interim uninterrupted replacement water service, the technical report must include actions the Dischargers have taken and will continue to take to provide interim uninterrupted replacement water service to the residence or business. If the reason that the Dischargers have failed to provide interim uninterrupted replacement water service is the refusal of the occupants of the residence or business to accept such service, the report must include a statement from the occupants of this refusal. The report must identify all other wells in the Affected Area that are threatened by the discharge and have yet to be sampled.

- 4. By December 31, 2008 and quarterly thereafter (by March 31, June 30, September 30, and December 31), complete the quarterly sampling of all private and community domestic wells within the Affected Area and submit samples with chain of custody documentation to a California certified laboratory for nitrate analyses. Laboratory analyses must include general minerals and regulated inorganics. Nitrate as NO₃ analysis must have a Method Detection Limit of 2 mg/L or less (nitrate as nitrogen Method Detection Limit of 0.4 mg/L or less).
- 5. By January 31, 2009, and quarterly thereafter (April 30, July 31, October 31, and January 31) but no later than 30 days after completing the well sampling required in Order 4 above, submit to the Water Board California-certified laboratory results and other quality assurance/control documentation from the first quarterly sampling event (and subsequent quarterly sampling events) for all potentially affected private and community domestic wells and a list of residences with nitrate as NO₃ concentrations exceeding 45 mg/L in their supply water. If the results indicate that other constituents beside nitrate are detected exceeding the MCL, the report must describe those wells affected. The report must state how each parcel owner and occupant were notified of these results within the required 48 hour period if a new detection above the MCL or within 5 days if previously detected at levels above the MCL. The report must contain a map showing the location of all wells that were sampled or attempted to be sampled. If the results of this monitoring identify a well that exhibits a nitrate as NO₃ concentration exceeding 45 mg/L (10 mg/L nitrate as nitrogen) for the first time. the Dischargers must notify the Water Board of this information within 48 hours of the Dischargers receiving the monitoring information and state the alternate water supply to be given to the residence or occupants.
- 6. **By March 20, 2009**, submit a detailed Alternative Water Supply Implementation Workplan for long-term, uninterrupted, replacement water, for domestic and community supply wells with nitrate as NO₃ concentrations exceeding 45 mg/L.

(10 mg/L nitrate as nitrogen). The workplan must propose an implementation schedule. Include a report describing the volumes of interim uninterrupted water supplied to specific addresses up to February 28, 2009.

- 7. Following Executive Officer's concurrence with the detailed Alternate Water Supply Implementation Workplan for wells with nitrate as NO₃ concentrations exceeding 45 mg/L (10 mg/L nitrate as nitrogen), the Dischargers shall implement the plan according to a schedule approved by the Executive Officer.
- 8. The Dischargers shall be liable, pursuant to Water Code section 13304, to the Water Board for all reasonable costs incurred by the Water Board to investigate unauthorized discharges of waste, or to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, pursuant to this Order. The Dischargers shall reimburse the Water Board for all reasonable costs associated with site investigation, oversight, and cleanup. Failure to pay any invoice for the Water Board's investigation and oversight costs within the time stated in the invoice (or within thirty days after the date of invoice, if the invoice does not set forth a due date) shall be considered a violation of this Order. If the Property is enrolled in a State Board-managed reimbursement program, reimbursement shall be made pursuant to this Order and according to the procedures established in that program.
- 9. All technical and monitoring plans and reports required in conjunction with this Order are required pursuant to Water Code section 13267 and shall include a statement by the Dischargers, or an authorized representative of the Dischargers, certifying (under penalty of perjury in conformance with the laws of the State of California) that the workplan and/or report is true, complete, and accurate. Hydrogeologic reports and plans shall be prepared or directly supervised by, and signed and stamped by a Professional Geologist or Professional Civil Engineer registered in California.

This Order in no way limits the authority of this Water Board to institute additional enforcement actions or to require additional investigation and cleanup of the site consistent with the Water Code. This Order may be revised by the Executive Officer as additional information becomes available.

Compliance with the provisions of this Order by any one or more of the primary responsible parties will be considered as compliance by all primary and secondary responsible parties. If none of the primary responsible parties comply with this Order, all of the primary responsible parties will be considered in non-compliance with this Order and subject to additional enforcement action.

PAUL RYKEN, -11-THE ESTATE OF NICK VAN VLIET, FLAMELING DAIRY, INCORPORATED, K&H VAN VLIET CHILDREN LLC, AND THE PACIFIC GAS AND ELECTRIC COMPANY San Bernardino County

CLEANUP & ABATEMENT ORDER NO. R6V-2008-0034 WDID NO. 6B36040900

Failure to comply with the terms or conditions of this Cleanup and Abatement Order. will result in additional enforcement action, which may include the imposition of administrative civil liability pursuant to Water Code sections 13350 and 13268 or referral to the Attorney General of the State of California for such legal action as he or she may deem appropriate.

Any person aggrieved by this action of the Lahontan Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, of state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at: http://www.waterboards.ca.gov/public notices/petitions/water quality or will be provided upon request.

nger Dated: Nov 10, 2008

ROLD J-SINGER **ECUTIVE OFFICER**

LSD/clhU:Cleanup and Enforcement/Specialists/Desert View Dairy CAO 11-4-08



1801 Old Highway 8 Northwest, Suite 114, St. Paul, Minnesota 55112 Telephone: 651-639-0913 Facsimile: 651-639-0923 www.CRAworld.com

December 8, 2008

Reference No. 054041-04

Mr. R. Gibson Snell & Wilmer LLP 600 Anton Blvd., Suite 1400 Costa Mesa, CA 92626

Dear Mr. Gibson:

Re:

Summary of Historical Data

Desert View Dairy

CRA has completed a review of information for the Desert View Dairy (Site) in Hinkley, California and surrounding area. The purpose of this review was to determine what additional activities in the area may have caused or contributed to the nitrate groundwater impacts that are currently being measured in the area surrounding the Site, to evaluate information from the PG&E remediation system, to evaluate groundwater conditions which pre-date Desert View Dairy (i.e. prior to 1991) and to identify potential nitrate sources from historical aerial photos.

CRA reviewed the following information:

- 1. Groundwater analytical data presented in the State of California's Geotracker Data Base;
- 2. Groundwater analytical data provided by PG&E's consultant (CH2MHill) in the form of historical data in Excel format;
- 3. Groundwater analytical data provided by Mr. Paul Ryken of Desert View Dairy;
- 4. Historical information provided in the form of Annual, Semi-annual and Quarterly reports prepared by PG&E's consultants;
- 5. Historical Natural Resource Conservation Service (NRCS) records for the area; and
- 6. Historical aerial photos from 1952, 1970, 1984, 1994, 2005 and present.

EXISTING CONDITIONS

The Site is a dairy which has been operated by Desert View Dairy since 1991. Monitoring wells at and around the Desert View Dairy have elevated levels of nitrate in groundwater.

The washwater from the Desert View Dairy is run through a solids separator, the solids are transported off-site for use as fertilizer by other agricultural operations. The liquids are contained in concrete tanks for land application as irrigation water. The water is applied daily



December 8, 2008

2

Reference No. 054041-04

to approximately 27 acres of cropland through a center pivot spray gun. Desert View Dairy estimates that approximately 45,000 gallons of water are currently being applied on a daily basis to this field. The sampling data provided by Desert View Dairy show a nitrate concentration in the range of ND to 4 mg/L nitrate as N. If these values are converted to nitrate as NO3, the concentration range is ND to 17.7 mg/L. Assuming the highest concentration (17.7 mg/L nitrate as NO3) and 45,000 gallons per day discharged to the 27-acre irrigation field, Desert View Dairy is applying approximately 0.25 pounds of NO3/acre/day.

TREATED WATER DISCHARGE FROM PG&E REMEDIATION SYSTEM

A separate activity by PG&E on land located south and west of Desert View Dairy involves the application of groundwater which is part of the PG&E chromium remediation project. There are currently four active extraction wells that pump an average of 400,000 gallons per day, which is discharged to an 80-acre parcel of land. This extraction/discharge system has been in operation since August 2004 and the historical concentrations of nitrate in the discharged water range from 9.15 to 12.9 mg/L nitrate as N. If these values are converted to nitrate as NO3, the concentration ranges from 40.5 to 57.1 mg/L. Applying the highest concentration of 57.1 mg/L and the estimated volume of water being discharged (400,000 gallons/day), PG&E is applying 2.4 pounds of NO3/acre/day.

A comparison of the PG&E and Desert View Dairy discharges shows that the PG&E remedy discharges approximately ten times the mass of NO3 per acre compared to Desert View Dairy. The continuous pumping and discharge may have also affected the nitrate concentrations in the area.

CH2MHILL stated in a 2005 Quarterly Monitoring Report that the percolation of discharged groundwater should not reach the water table aquifer for several years. However, CRA was unable to locate any data to support this statement. In an attempt to evaluate the infiltration travel time, CRA utilized VLEACH version 2.2 (USEPA's leaching model) to calculate a preliminary time estimate for injected water to reach the aquifer. The predicted results show that the re-injected water could reach the Upper Aquifer in approximately one year (80 ft/yr.), which is significantly less than the time frame of several years stated by CH2MHill.

Detailed calculations along with the VLEACH modeling results are presented in Attachment A.

CRA is also concerned that the continuous discharge of water over the Land Treatment Unit (LTU) may have inadvertently flushed nitrate out of the soil and into the groundwater. We were unable to find any pre-discharge soils data that showed nitrate concentrations in the soil. It is possible that any nitrate present at that time may have been transported downward with the re-injected water.



December 8, 2008

3

Reference No. 054041-04

GROUNDWATER CONDITIONS PRIOR TO DESERT VIEW DAIRY (I.E. PRIOR TO 1991)

There is a large amount of data that has been generated during the evaluation of the chromium plume south of the Desert View Dairy. Older data focused on the area around the compressor station, which was a significant distance south (upgradient) from the Dairy. As this investigation continued, monitoring wells were installed and data became available further north and closer to the Desert View Dairy. CRA reviewed the historical database to determine what data was available prior to Desert View Dairy operating the Site. The data we plotted on Figure 1 which shows that prior to Desert View Dairy moving to the Site in 1991, nitrates were already being measured above the drinking water standard.

We were not able to determine the extent of the nitrate plume during this time because there were very few data points available. However, we plotted the historical high nitrate as NO3 concentrations for all wells in the area which are shown on Figure 2. These data show that there are numerous wells that exceed the drinking water standard that are upgradient and cross gradient of Desert View Dairy. Wells upgradient and to the east (26-37 and MW-49A and 49B) show concentrations in the 65 to 70 mg/L range. Wells upgradient and to the south of the Desert View Dairy show concentration ranging from 55 to 90 mg/l nitrate as NO3. The area southwest of the Dairy, which was the location of Nelson Dairy for an estimated 25 years, had nitrate as NO3 detected at concentrations ranging from 53 to 70 mg/l. Farther west (west side of Tamarack Road), monitoring wells near the former Lyerely Dairy have concentrations detected in the range of 72 mg/l nitrate as NO3. The Lyerely dairy operated from approximately the 1960's to just a few years ago.

The data presented on these figures show pre-existing nitrate levels which exceeded the drinking water standard that cannot be associated with just Desert View Dairy. Additional detail on historical agricultural land use in the Hinkley area is discussed in the next sections.

HISTORICAL AERIAL PHOTO REVIEW

CRA obtained copies of aerial photos from the 1950's to present (specifically 1952, 1970, 1984, 1994 and 2005) that extended 0.5 miles north and south and 1 mile east and west from the Site. The purpose of this aerial photo review was to determine what other sources of nitrates may have contributed to the groundwater impact currently being seen in the area. In general, the entire area has been used for agricultural purposes at least since 1952. In addition to the large number of acres fertilized and irrigated for crop production, several livestock/dairy operations are noted throughout this time period. Each aerial photo is summarized below with copies presented as Attachment B:



December 8, 2008

4

Reference No. 054041-04

1952 Aerial Photo

This aerial shows that the entire area was extensively used as cropland. There are numerous ponds (presumably irrigation ponds) across the area. There also appears to be small livestock operations to the south and southwest of the site with the largest livestock operation located where the Nelson Dairy is currently located. This cropland soil would have required extensive irrigation and fertilization in order to support the crops being grown.

1970 Aerial Photo

This aerial photo shows a smaller area of agricultural cropland than before. The majority of the fields are centered around the site. There are still numerous ponds visible with two along Thompson Road. The Nelson Dairy area has expanded in size and a storage pond is evident. There are also two livestock operations west of Nelson Dairy approximately 1/4 and 1/2 mile to the west.

1984 Aerial Photo

This aerial photo shows the site developed as a dairy operation with heavy irrigation and cropland surrounding it. The area south of the Site was also heavily irrigated and was presumed to be part of Nelson Dairy which tripled in size (by 1984??) compared to the 1970's. The livestock operation 1/4 mile west of Nelson Dairy remained about the same in 1984while the operation 1/2 mile west (along Serra Road)has doubled in size with what appears to be a storage pond and solid manure stockpiles (this is the Dairy Mr. Ryken stated was owned and operate by the Lyerely's). Another livestock/dairy operation is evident along Hinkley Road and Highway 58 which also has a storage pond and what appears to be solid manure piles. This operation would be upgradient of the western residential wells. There also appears to be a small operation with irrigation at the site of one of the residential wells along Thompson Road (22875 Thompson Road). Further west on Thompson Road was another heavily irrigated area that was presumed to be cropland but is located near 22726 Thompson Road. Both of these residential wells had higher elevations of nitrates than the surrounding neighbors as measure in October, 2008..

1994 Aerial Photo

The 1994 aerial photo showed a continued decrease in agricultural cropland as well as irrigation. The dairies to the west were present but the land around those dairies did not appear to be heavily irrigated. The area along Thompson Road continued to be heavily irrigated. It should be noted that the 1994 photo is black and white; hence, the contrast between active agricultural operations (irrigation) and inactive was difficult to determine.

2005 Aerial Photo

The 2005 aerial photo showed a continued decrease in agricultural cropland as well as irrigation. The only land that appeared to be in production are the fields that were irrigated as